

Review Comments

This paper provides a thorough investigation of the fault slip potential induced by fluid injection in the Matouying EGS field, Tangshan, China. The case study of the EGS field has important implications for deep geothermal exploitations. Overall, the paper is interesting, useful, and well-written. I believe this paper should be considered for publication if the authors could address the following comments/suggestions.

1. In Section "**4.1 Stress field inversion from earthquake focal mechanisms**" on page 5, it would be better if the authors could provide the focal mechanisms data in the supplement.
2. In Section "**5 Initial fault slip potential in Tangshan seismic region in the present stress field**" on pages 8 and 9, if the deterministic geomechanical assessment ignores multiple sources of uncertainty, and if the probabilistic geomechanical assessment is more robust and accurate, is it important to also present the deterministic results? If the deterministic assessment provides compelling or useful information, consider adding more information into the paper as to why this information is relevant. Otherwise, consider removing the deterministic analysis from this paper.
3. In Section "**6.1 Hydrology model**" on page 12, whenever you mention the simplifying assumptions of a method, consider adding some commentary as to whether these assumptions are appropriate or not in the MYT EGS field? Please clarify.
4. In Section "**8 Discussion**", I suggest that the authors should also discuss the effect of porosity on the fault slip potential in the MTY EGS field.
5. In Section "**8.4 The predicted maximum magnitude of injection-induced seismicity in MTY EGS field**", what is your explanation for the discrepancies in the Galis and McGarr model results? What are the strengths and weaknesses of these two models?
6. In Section "**8.4 The predicted maximum magnitude of injection-induced seismicity in MTY EGS field**", whether the predicted maximum magnitude of

injection-induced seismicity would be larger or smaller than that of the largest natural earthquake with a magnitude in the MTY EGS field? Please make some comparisons.

7. In Figure 11, Fig.11(b) should be the probabilistic fault slip potential on the mapped faults in response to the hypothetical fluid injection in 2040, rather than 2030.
8. Regarding the paper organization, there are too many sections, and some of them could be combined. For example, Sections 2 and 3 could be combined as a background section; Sections 5, 6 and 7 could also be combined.